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CHAPTER ONE INTRODUCTION 1.1 BACKGROUND OF THE RESEARCH The increasing transportation by sea since the second World War, of oil, chemicals and other hazardous products has created a new and ever greater risk of injury to persons, damage to property and in particular damage to the marine environment. 1 It was reported that in 1991 the hazardous cargoes represented 10-15% of the volume of total seaborne trade. 2 In 1996, the International Maritime Organization (IMO) estimated that more than 50% of packaged goods and bulk cargoes transported by sea today could be regarded as dangerous, hazardous or harmful to the environment. 3 Hence the growing pattern of hazardous cargoes transported by sea would lead to complexities in dealing with HNS liability and compensation besides the harmful effects on the marine environment. The Chairman of the International Tanker Owner's Pollution Federation (ITOPF), commented: "this year, as in the past, we have been involved in a number of incidents where the cargo on the ship was either a chemical or a substance other than oil...". 4 The Australian National Marine Chemical Spill Contingency Plan 2010 explained that,

3 worldwide, about 200 million tonnes of dangerous goods and hazardous materials were transported by sea each year.

5 Rickaby stated that 1 M. Dela Rue, Colin, ed., Liability for Damage to the Marine Environment, (London: Llyod's of London Press Ltd, 1993) at 1. 2 Wetterstein, Peter, "Carriage of Hazardous Cargoes By Sea-The HNS Convention",

4 26 Ga.J.Int'l & Comp.L.(

1997):1 st October 2007 <http://www.lexis-nexis.com>. 3 International Maritime Organisation, Focus on IMO, IMO and dangerous goods at sea, (London: International Maritime Organisation, 1996). 4 International Maritime Organisation, Legal Committee, 85 th session, Agenda item 5, Monitoring Implementation Of The Hazardous And Noxious Substances Convention, (London: International Maritime Organisation, 2002) at 4. 5 Australia,

3 National Marine Chemical Spill Contingency Plan (ChemPlan), Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances, (Australia: ChemPlan 2010).

"There are well over a million hazardous substances, materials and articles produced worldwide and some 50,000 are shipped commercially at any one time and in ever increasing numbers". 6 Rickaby added that "On the global basis, marine incidents involving HNS in fact can be expected to be two or three major incidents each year and these can be expected to increase as the level of HNS transported globally increases annually...". 7 Hazardous and noxious substances as included in the 1996 HNS Convention are treated as hazardous and noxious because these substances are considered as such based on the proposals received by the United Nations Committee of Experts on the Transport of Dangerous Goods and on their labeling as hazardous by the Globally Harmonized System of Classification and Labeling of Chemicals. 8 In other words, the substances stated in the 1996 HNS Convention are hazardous and noxious in nature because those substances may cause damage when exposed to humans and pollute the marine environment.

3 These chemicals can enter the marine environment as a result of accidental or deliberate releases. 9 Accidental releases can occur as a result of natural disasters, human error or due to technical and

mechanical faults in chemical transfer or storage equipment; intentional releases could include the dumping of chemical wastes, acts of war, terrorism or sabotage.

10 6 Rickaby, Simon, "Marine responses to HNS and dealing with the MSC Napoli contaminated cargo" 15 January 2010. <http://www.spillcontrol.org?IMO Documents/Braemar Howell HNS paper Nov 2008> , 15 June 2010, 11.45 am. 7 Ibid. 8 Ibid. 9 Australia,

3National Marine Chemical Spill Contingency Plan (ChemPlan), Australia's National Pelan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances, (Australia: ChemPlan, 2010)

. 10 Ibid.

3Incidents involving vessel groundings, collisions, fire, explosion, cargo reaction could also cause chemical spills from vessels involved.

11 Globally, marine spills involving HNS are not rare. A world-wide survey of marine HNS emergencies showed that: 12 i) there is a wide range of cargoes which need to be considered as potential threat; ii) most accidents involved mainly two classes of HNS: flammable liquids and corrosive materials; iii) one to two major HNS accidents can be expected each year; iv) a wide variety of ship types were associated with HNS accidents; and v) HNS accidents were almost equally divided between 'bulk' and 'packaged goods' shipments.

1 A maritime accident involving a vessel transporting HNS may result in an uncontrolled release of a product potentially damaging to life, the environment or property. 13 The toxic effect of

HNS may appear during

1 exposure or may be delayed for sometime after exposure.

14 The

1 effects of the spill will depend on the characteristics of the substance, the quantities involved and the time factor of the spillage. 15 The vulnerability of the surrounding area and the effectiveness of the emergency measures taken to minimize the accident can affect the outcome. 16 HNS may cause any one or more of the following hazards: flammability, explosivity, toxicity, infection, reactivity, corrosivity and radioactivity. 17 A distinction is

usually made between acute and chronic effects: 18 11 ChemPlan, loc.cit. 12 International Maritime

Organisation, Manual on Chemical Pollution Section 1, Problem Assessment And Response Arrangements, sales number IA630E, (London: International Maritime Organisation, 1999) at 1. 13 Id at 19. 14 Ibid. 15 Ibid. 16 Ibid. 17 Ibid. a)

1 acute effects, are those that occur within a relatively short period of time (minute, hours, days) following a short term exposure to a HNS, with the most extreme effects being death; b) chronic effects, are those that persist over a long period of time whether or not they occur immediately on exposure or occurrence, chronic effects may be : i) lethal, causing death of the organism;

ii) sub-lethal,

1 detrimental to health, but not causing death. Some toxic effects are reversible, while others are irreversible. A distinction is also made on whether the site of action of the HNS is local or systemic: 19 i) local effects occur at the primary site of contact, for example, a skin reaction following exposure to an organic solvent; ii) systemic effects occur once the HNS has been absorbed and circulated throughout the body, to a site distant from the original contact or point of entry, for example, liver damage following inhalation of hydrocarbon vapours. In this respect, some organs are known to be particularly sensitive to damage by specific substances.

Noor Apandi submitted that Malaysia is liable as a contributor of HNS 20 though Malaysia is not a party to the 1996 HNS Convention. The data of all imported HNS by Malaysia in 2004 provided by the Statistics Department revealed that there were 76 items (Appendix 1) and 435 items (Appendix II) that are defined as HNS substances according to the HNS 18 International Maritime Organisation, Manual on Chemical Pollution Section 1, Problem Assessment And Response Arrangements, sales number IA630E, (London: International Maritime Organisation, 1999) at 26. 19 Ibid. 20 Noor Apandi Osnin, " Malaysia & The HNS Convention",

2 International Conference Shipping in the Era of Social Responsibility,

(Greece,2005). Convention. 21 The incidents of HNS in Malaysia waters and worldwide is discussed in Chapter Two (2), it is crucial for Malaysia to secure her ports and her marine environment in the Straits of Malacca from the consequences of HNS incidents as the straits are vital to Malaysia. Table 1.1 Malaysia's

2 HNS receipt for 2004. 22 ACCOUNT MALAYSIA RECEIPT FOR 2004 (TONNES) 1. Oil

168,214,609.22 2. Liquid Natural Gas (LNG) 1,193,431.66 3. Liquid Petroleum Gas Carrier (LPG) 770,156.80 4. Others 276,595,028.74 Source: Malaysia's Statistics Department. Although elements of preparedness and response for oil and HNS are similar in the recommended organizational and administrative structures, there are some differences from a technical standpoint in terms of proactive and safety measures and pollution response equipment due to a number of reasons: 23 i) oil normally floats in

viscous layers: this behavior is valid only for a minor proportion of HNS; ii) oil spills are highly visible: in many cases spills involving HNS are not so easy to see; iii) oil spill response technology is well developed: this is not the case for HNS and iv) skimming of oil from the water surface can be carried out with reasonable success: this is often not always feasible for HNS. 21

2All imported goods are listed and coded in accordance with the Malaysian Trade Classification and

The Custom Code Book. The data provided by the Statistics Department includes information on the codes for each goods, unit of quantity, import country and import value in Ringgit Malaysia. Two codes were examined in order to identify HNS substances. The main code (consist of four digits, for example

2HS 1511 refers to Palm Oil and its fractions)

and a sub category of the main code (consists of nine digits,

2for example HS 1511 10 000 refers to Palm Oil, Crude).

See Noor Apandi Osnin, " Malaysia & The HNS Convention",

2International Conference Shipping in the Era of Social Responsibility,

(Greece,2005). 22 Ibid. 23 International Maritime Organisation, Manual on Chemical Pollution Section 1, Problem Assessment And Response Arrangements, sales number IA630E, (London: International Maritime Organisation, 1999) at 2. A report by the UN Secretary-General on Products Harmful to Health and the Environment 24 showed that the production and utilization of chemical substances in the world has undergone unprecedented growth in the course of the last 50 years. At least 75,000 different chemicals are used in pesticides, pharmaceuticals, plastics and other products. 25 Although it is difficult to obtain exact figures, chemical substances including pesticides and fertilizers represent about 10 percent of world trade, amounting to approximately \$18 billion in annual sales. 26 Over 10,000 organochlorines are currently in commercial use, used to make plastics, solvents, disinfectants, refine petroleum, bleach pulp and paper, to treat wastewater, and for dry cleaning. 27 The well figured increasing transportation of HNS, incidents and production

4of hazardous and noxious substances by sea demonstrate the need for

Malaysia to ratify the 1996 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 28 and the imminent 2010 HNS Protocol. At the moment in Malaysia and worldwide, without ratification of the 1996 HNS or its 2010 HNS Convention Protocol or 2000 OPRC-HNS Protocol (at present, without the entry into force of the 1996 HNS Convention and the 2010 HNS Convention Protocol) all matters relating to HNS is resolved through domestic law in particular the law of tort or where available domestic regulations on HNS, the national plan if in existence or 24 McKinley, Derek. The 1996

4International Convention on Liability and Compensation for the Carriage of Hazardous and Noxious Substances by Sea: Implications for State

Parties, the Shipping, Cargo and Insurance Industries, (Diss. LLM, University of Cape Town,

South Africa, 2005) at 7. 25 Ibid. 26 Ibid. 27 Ibid. 28 The Preamble of the 1996 HNS Convention are; (1) conscious of the dangers posed by the worldwide carriage by sea of hazardous and noxious substances, (2) convinced of the need to ensure that adequate, prompt and effective compensation is available to persons who suffer damage caused by incidents in connection with the carriage by sea of such substances, (3) desiring to adopt uniform international rules and procedures for determining questions of liability and compensation in respect of such damage, (4) considering that the economic consequences of damage caused by the carriage by sea of hazardous and noxious substances should be shared by the shipping industry and the cargo interests involved. through sub regional or regional cooperation among neighbouring States. The issues pertaining to the sub-regional management of HNS are discussed in Chapter Four (4) of this thesis and straits States domestic laws are discussed in Chapter Five (5). The glaring problem posed by the claimant of a HNS incident is the absence of the element of strict liability and compulsory insurance against liabilities on HNS incidents. 29 The limitation on liability by most States of maritime claims (without the entry into force of the 1996 HNS Convention its 2010 HNS Convention Protocol) is governed by International Convention on Limitation of Liability for Maritime Claims 1976 as amended the 1996 Protocol (the 1996 LLM Convention). 30 According to McKinley, the immediate problem with the 1976 LLMC (1996 LLM Convention) is that the liability limits are too small in comparison with the aggregate of claims, which would be anticipated to result from a serious HNS incident. 31 There are some States that have enacted their own legislation pertaining to HNS liability and compensation, for example the US has enacted the United States Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in 1980 and United States Oil Pollution (OPA) 1990 which deals with the liability and scheme of oil pollution. 32 It was reported that the US legislated the OPA 1990 after the Exxon Valdez incident in 1989. As was pictured by Rickaby in commenting on the incident of Exxon Valdez, "It was recognized that if a 37,000 ton spill could not be cleaned up effectively by the US with all of its resources, then what chance had the rest of the world when potentially spills of over 200,000 tons were possible". 33 29 McKinley, Derek. The 1996

4International Convention on Liability and Compensation for the Carriage of Hazardous and Noxious Substances by Sea: Implications for State Parties, the Shipping, Cargo and Insurance Industries, (Diss, LLM, University of Cape Town,

South Africa, 2005) at 10. 30 At the moment Malaysia has ratified the International Convention on Limitation of Liability for Maritime Claims 1996 but not the International Convention on Limitation of Liability for Maritime Claims 1976. 31 McKinley, loc. cit 32 Ibid. 33 Rickaby, Simon, "Marine response to HNS and dealing with the MSC Napoli contaminated cargo" <http://www.spillcontrol.org?IMO Documents/Braemar Howell HNS paper Nov 2008> , 15June 2010, 11.45 am. The 1996 HNS Convention is not enforced yet as 34 it will enter into force eighteen (18) months after at least twelve (12) States, including four (4) States with not less than two million units of gross tonnage have ratified it. Canada, Denmark, Finland, Germany, the Netherlands, Norway, Sweden and the United Kingdom have signed the convention subject to ratification. There are eight (8) States that have ratified the 1996 HNS Convention: Angola, Morocco, Saint Kitts & Nevis, Samoa, Slovenia and Tonga. There are two (2) States; Cyprus and Russian Federation which have more than 2 million units of gross tonnage. As stated in the recent (2010) status of conventions by IMO, the 1996 HNS is not enforced yet, at the moment there are fourteen contracting states with 13.61% of world tonnage. 35 The fourteen (14) States are Saint Kitts and Nevis, Samoa, Sierra Leone, Slovenia, Russian Federation, Hungary, Liberia, Lithuania, Morocco, Syrian Arab Republic, Tonga, Ethiopia, Cyprus and Angola. 36 The awareness and growing concern of the need to protect the marine environment from disasters

4 **resulting from the carriage of hazardous and noxious substances**

besides protecting various parties involved in the shipment is well reflected by the International Maritime Organization's efforts in establishing the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS) 1996. The 1996 HNS Convention was developed based on the model of the International Convention on Civil Liability for Oil Pollution Damage (CLC) 1969 and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention) 1971. The CLC 1969 and the 34 Capt. Noor Apandi Osnin, " Malaysia & The HNS Convention",

2 **International Conference Shipping in the Era of Social Responsibility**

(Argostoli, Cephalonia, Greece, March 2005). 35 Summary of Status of Convention, 31 May 2010, http://www.imo.org/conventions/mainframe.asp?topic_id=247 , 17 June 2010, 12pm. 36 Ibid. Fund Convention 1971 37 , as amended by 1984 Protocol were developed in order to provide compensation for damage arising from persistent pollution from oil carried in bulk as cargo. Basically, the oil compensation regime is established due to the outcry of public attention based on the incident of the grounding of the Torrey Canyon in 1967. 38 The original intention, following the Torrey Canyon, had been to develop an international liability convention for the carriage of other dangerous and polluting cargoes, as well as oil. 39 At the same time, the International Conference of 1969 adopted a resolution recommending

4 **that the IMO should intensify its work on all aspects of pollution by agents other than oil.** 40 **The**

IMO's Legal Committee was aware and anticipated the complexities and hardship in drafting the HNS Convention. Some of the major points of disagreement included the extent of the cargo shipper's obligations to effect insurance and to assume liability for HNS-related damage, the question of whether limits of liability should "stand alone" or reflect the provisions of LLMC 76, and whether HNS carried in packaged (as opposed to bulk) form should be covered. 41 Finally, the HNS Convention was adopted at the end of a diplomatic conference on 3 rd May 1996. Besides providing a regime on liability and compensation on HNS and safety risks, the IMO also ensured the improved safety standard for the design, construction and equipment of the HNS ships. Meanwhile, there are other specific international conventions regulating the transport of HNS according to the different means of transport such as: 37 Malaysia has ratified CLC 1969 and Fund Convention on the 6 th April 1995. 38 The oil tanker Torrey Canyon ran aground on the Seven Stones Reef between the Isles of Scilly and Land's End in the 1967. The oil spill caused great damage to the fishing, tourism and recreation industries of the affected coastal states, and to the natural environment and wildlife of the region. Some 117000 tons of crude oil were spilled causing severe pollution to the English and French coasts. More than GBP14 million (GBP12 million /USD \$188 million at 1998 prices) of quantifiable claims arose in UK and France. 39 H. Nordquist, Myron and Moore, John Norton, eds., Current Maritime Issues and the International Maritime Organisation, (London : IMO, 1999). 40 M. Dela Rue, Colin, op.cit.,2. 41 Khee-Jin Tan, Alan, Vessel-Source Marine Pollution, (United Kingdom: Cambridge University Press, 2006), at 335. 9 i) The European Agreement Concerning the International Carriage of Dangerous Goods by Road (1957); ii) The Convention Concerning International Carriage by Rail (1924) and its annex; Regulations Concerning the International Carriage of Dangerous Goods by Rail (1924/1985); iii)

3 **The International Convention for Safety of Human Life at Sea (SOLAS 1974); iv) The Convention on**

International Civil Aviation (1944), Annex 18; and Technical Instructions for the Safe Transport of Dangerous Goods by Air; v) The International Convention for the Prevention of Pollution by Ships (MARPOL 73/78) and vi) Regulation of the Carriage of Dangerous Substances on the Rhine (1970). 42 The Legal Committee of the International Maritime Organization has decided to use the term HNS in HNS Convention rather than the term of dangerous goods as used in the Convention on Civil Liability for Damage Caused During Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessel 1989 (CRTD 1989) Convention relating to inland transport. 43 The terms 'dangerous goods' 44 means cargo which is potentially hazardous such as inflammable or toxic goods. Such cargo must be notified by the shipper to the carrier as being dangerous and is usually carried on deck. The dangerous goods are also known as hazardous materials or hazardous goods. 42 McKinley, Derek, The 1996

4 International Convention on Liability and Compensation for the Carriage of Hazardous and Noxious Substances by Sea: Implications for State Parties, the Shipping, Cargo and Insurance Industries, (Diss. LLM, University of Cape Town,

South Africa, 2005) 43 M. Dela Rue, loc.cit. 44 Brodie, Peter, Dictionary Of Shipping Terms, 5 th ed.,(London:Informa, 2007), at 82. Looking at the constant increase in HNS shipment, the rapid growth of the production and utilization of chemical substances worldwide and the increasing number of disastrous consequences of HNS shipment, it is submitted that Malaysia should ratify the 1996 HNS Convention. Apart from the 1996 HNS Convention, it is proposed to ratify the 2010 HNS Convention Protocol and the 2000 OPRC-HNS Protocol. 1.2 DELIMITATION OF TERRITORIAL WATERS IN THE STRAITS OF MALACCA Malaysia, Indonesia and Singapore have agreed to define their maritime boundaries within the strait. For the purpose of this research, the maritime delimitation between Malaysia and Indonesia is explained because the focus of this thesis is on the waters within the Straits of Malacca. Malaysia and Indonesia have agreed to the boundary lines of the territorial waters of the two nations in the Straits of Malacca on 17 th March 1970. 45 The location is within the territorial waters in the Straits of Malacca, applying simplified equidistance. 46 The series of lines closely resemble the continental shelf boundary. The collective length of the segments is 177.5 nautical miles. 47 It is important to determine maritime limits in the Straits of Malacca for the purpose of this research, in order to have a clear view regarding the maritime limits in the Straits of Malacca. However, in the northern end of the Straits of Malacca there is no exclusive economic zone boundary between Malaysia and Indonesia. 48 It is not an easy task to resolve maritime boundaries, but efforts and progress towards 45 Ahmad, Hamzah ,ed., The Straits of Malacca, International Co-Operation In Trade, Funding & Navigational Safety, (Petaling Jaya, Pelanduk Publication, 1997), at page 32. 46 Forbes, Vivian Louis, Conflict and Cooperation in Managing Maritime Space in Semi-enclosed Seas, (Singapore: Singapore University Press, 2001), at 70. 47 Id at71. 48 Bateman, Sam, "Good Orders At Sea In Southeast Asia", S.Rajaratnam School Of International Studies, Nanyang Technological University, Policy Paper 2009. delimiting the boundaries is crucial in order to carry resource development and enforcement against illegal fishing and others. 49 Below are the maps relating to the delimitation of Malaysia's maritime limit. 50 Figure 1.1 Defining Maritime Limits of Territorial Sea, Continental Shelf and Traffic Separation Scheme: Western Approaches to the Strait of Singapore. Source Figure 1.1: Vivian Louis Forbes and Mohd Nizam Basiron, Malaysia's Maritime Space: analytical atlas of environments and resources, MIMA at 13. i) Determining Maritime Limits of Territorial Sea, Continental Shelf and Traffic Separation Scheme: The Eastern Approaches to The Strait of Singapore Figure 1.2 49 Bateman, Sam, "Good Orders At Sea In Southeast Asia", S.Rajaratnam School Of International Studies, Nanyang Technological University, Policy Paper 2009. 50 Forbes, VL and Basiron, MN, Malaysia Maritime Space: An analytical atlas of environments and resources, (Kuala Lumpur: Malaysia). Figure 1.2 The Eastern Approaches to The Strait of Singapore Source Figure 1.2: Vivian Louis Forbes and Mohd Nizam Basiron, Malaysia's Maritime Space: analytical atlas of environments and resources, MIMA at 14. 1.3 OBJECTIVE OF THE RESEARCH 1.3.1 Main objective: This research has two objectives: Development of a sub-regional model for HNS pollution control and second implementing international provisions in domestic laws of Malaysia in particular on liability and

compensation. First, it demonstrates the importance of adopting a sub-regional approach to the management of HNS pollution by ratification of the 2000 OPRC-HNS Protocol by the strait States of Malaysia and Indonesia as Singapore has ratified the 2000 OPRC-HNS Protocol, it stresses the importance of ratification of the imminent 2010 HNS Convention Protocol to the 1996 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances By Sea by Malaysia, Indonesia and Singapore. Thus the application of the Convention and protocols in the strait States domestic laws of the Straits of Malacca will be protected and preserved. The Straits of Malacca is an economic asset of Malaysia as her investments, major ports and natural resources are located therein and the findings of the importance of the Straits of Malacca to Malaysia are based on research done in Chapter Two (2) of this thesis. To achieve these two main objectives the thesis has undertaken an analysis of the current regimes on passage and density of navigation, safety of navigation, marine pollution control, analysis and ratification of international conventions, comparative and contemporary regional and sub-regional mechanisms for cooperation in the management of HNS in other parts of the world and domestic HNS laws of the three strait States of Malaysia, Indonesia and Singapore. However in this section the two main findings are discussed: Second 1.3.2 Arguments in Chapters To achieve these two main objectives, the thesis examines four main areas in four chapters, namely Chapters Two to Five as follows: i) Chapter Two examines the regime of the Straits of Malacca in International Law and analyses the reports on the increasing number of vessels, types and carriage of vessels passing through the congested waterway and significance of the passage through the Straits of Malacca and the implications of this trend for HNS incidents. It argues in conclusion that the status quo on the legal aspects must change. ii) Chapter Three analyzes the international environmental law principles and the provisions in the 1996 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996, the 2010 HNS Convention Protocol and the 2000 OPRC-HNS Protocol and other related IMO international conventions on shipment of HNS and marine pollution control. It examines the implications of these conventions for Malaysia in the context of HNS pollution. iii) Chapter Four examines the adequacy of the current sub-regional mechanisms for containment of HNS pollution and compares other international and regional cooperation mechanisms including oil spill response action plans in this context and assesses its implications for the Straits of Malacca and emphasizes the need to adopt a sub-regional HNS pollution control approach. iv) Chapter Five enquires into the adequacy of the provisions of Malaysian, Indonesian and Singaporean domestic laws on shipment of HNS and evaluates these inadequacies in terms of an HNS pollution incident. A model national law setting out the main features on HNS liability and compensation is also drawn up. v) Chapter Six lays down the Recommendations for the adoption of a Sub-regional Model for the Strait of Malacca for management of HNS pollution incidents by ratification of the 2000 OPRC-HNS Protocol and proposes ratification of the imminent 2010 HNS Protocol to the 1996 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea and to implement these provisions into Malaysian domestic laws.

1.4 LIMITATION OF THE RESEARCH

This thesis examines the legal approach as it focuses on the related statutes in the domestic laws of Malaysia, Indonesia and Singapore pertaining to the HNS shipment, the 1996 HNS Convention, the 2010 HNS Convention Protocol, the 2000 OPRC-HNS Protocol and other related international conventions and the sub-regional management of the shipment of HNS by Malaysia, Indonesia and Singapore in the Straits of Malacca. No scientific or toxicity impact studies of the HNS on humans or property and the marine environment in general are discussed in this thesis. However, some research observations of the existence of HNS in the marine environment conducted by the Malaysian scientists along the Straits of Malacca are highlighted together with the impact of the HNS on the human and the marine environment is explained in Chapter Two (2) of this thesis. The economic impact and the calculation of the compensation of the HNS incidents are also not covered in this thesis. The possibility of a hybrid collision of a ship from the HNS liability and compensation regime with a ship from another regime has been highlighted but this research does not examine further calculations of the compensation due to the hybrid collision. The explanation of the possibility of a hybrid collision is explained in Chapter Three (3) of this thesis. It is important to stress here that since the 1996 HNS Convention and the draft 2010 HNS Protocol are not enforced yet, there are no court cases pertaining to the 1996 HNS Convention and as such are not available for discussion. In the following terms as used in this thesis are explained here below: a) Malaysian waters: It is also important to explain the scope of the Malaysian waters covered in this research.

The 1982 LOSC has not defined the location where the strait starts and where the strait ends. The researcher is in line with George's opinion that the Straits of Malacca starts

4at the entrance **of the** Straits **of** Malacca and **the**

passage ends

4at the exit **of the** Straits **of** Malacca. **51** **The**

researcher agrees with Amelia that it is an established fact that the waters contained in the Straits of Malacca are internal waters and territorial waters which belong to Malaysia and Indonesia, meanwhile at the northern end of the Straits of Malacca, Malaysia's exclusive economic zone exists. ⁵² The delimitation of the boundary between Malaysia and Indonesia is ascertained by the treaties agreed by both parties. b) The Straits of Malacca: This research is limited to a focus upon the shipment and incidents of HNS within the Straits of Malacca, and compares them with the incidents and related rules and regulation and management of HNS in the Strait of Singapore, and with Australia's experiences in implementing compulsory pilotage, coastal pilotage and the adoption of the Australian

3National Marine Chemical Spill Contingency Plan. **The** reason why **the**

Strait of Singapore is not discussed in depth is because this thesis focuses on HNS shipping implications for Malaysia. Nevertheless, the thesis will discuss the Strait of Singapore with respect to Singapore's domestic laws on HNS. This research does not examine the shipment of HNS in other similar straits in the world. Another clarification in this thesis relates to the term "Straits of Malacca." Certain authors use the term "Malacca Strait" and others prefer the term "Straits of Malacca". Forbes opined that the term Malacca Strait should be used rather than the Straits of Malacca because the Malacca Strait refers solely to Malacca Strait and furthermore this term (the Malacca Strait) is adopted by the British Admiralty ⁵¹ George, Mary, "Legal Regime of the Straits of Malacca and Singapore" Kuala Lumpur: Lexis Nexis, 2008), at 4. ⁵² Amelia Emran, The regulation of vessel-source pollution in the Straits of Malacca and Singapore, (Thesis Master of Maritime Studies (Research)), University of Wollongong, Wollongong, 2007. Hydrographic Office and International Hydrographic Organisation (Special Publication 23), Draft 4 th edition 1986. ⁵³ Forbes added that there are other named straits along the Straits of Malacca, for example the Strait of Rupert, the Strait of Bengkali and the Strait of Johor. ⁵⁴ Forbes opined that confusion has set in when the two straits Malacca and Singapore creep into the literature as the Straits of Malacca and Singapore. ⁵⁵ However, in this research, the term "the Straits of Malacca" is used because there are minor straits within the Straits of Malacca. Therefore, the term used in this thesis is the Straits of Malacca rather than the Malacca Strait. The term 'the Malacca Strait' is used in this thesis only where it refers to another author's writing. Although Malaysia, Indonesia and Singapore border the Straits of Malacca and Singapore, their domestic laws and their ratification of international conventions relating to HNS shipment are according to the needs of each State. Thus, this situation has led to the differences in domestic laws of the three strait States and their implementation of the ratified conventions. The importance of the Straits of Malacca and Singapore to Singapore has been illustrated by Hamzah Ahmad: ⁵⁶ "... The availability of excellent bunker fuel, communication and repair facilities in Singapore makes it doubly attractive for ships to use the Straits of Malacca and Singapore". ⁵³ Interview with Professor Dr Vivian Louis Forbes, University of Western Australia, email interview, 27 th May 2010. ⁵⁴ Ibid. ⁵⁵ Ibid. ⁵⁶ Hamzah Ahmad, ed., The Straits of Malacca, International Co-Operation In Trade, Funding & Navigational Safety, (Petaling Jaya, Pelanduk Publication, 1997), at page 4. Indonesia, on the other hand, is interested to market its own ports as alternatives to the Malacca Strait. ⁵⁷ As for Malaysia, the Straits of Malacca holds special interest as her investments, major ports, natural resources and many others are located therein. c) Translation of Indonesian domestic laws:

The translation of Indonesian domestic laws into the English language was a challenge but undertaken successfully. d) The HNS Conventions: This research analyzes all IMO conventions and the implementation of these conventions on HNS in particular the 1996 HNS Convention and the 2010 Protocol to the 1996 HNS and the 2000 OPRC-HNS Protocol into the domestic laws of Malaysia, Indonesia and Singapore pertaining to the shipment of HNS. In the following terms as used in this thesis are not explained further: a) Ship wrecks are not discussed in this thesis in detail. 58 b) The thesis does not discuss the legal processes of justice in the domestic legal system of the straits States. c) Enforcement bodies that manage HNS shipment are mentioned in general. d) The research will focus on the hazardous and noxious substances as listed in the 1996 HNS Convention but does not include cargoes that can be hazardous, for example, 57 J. Capon, Craig "The Threat of Oil Pollution in The Malacca Strait: Arguing For A Broad Interpretation Of The United Nations Convention On The Law Of The Sea", 1998 Pacific Rim Law and Policy Association <http://www.lexis-nexis.com>. 58 No further research to discuss the Nairobi International Convention on Ship Wreck 2007. logs or sawn timber that can deplete the oxygen level in a ship's hold without the cargo itself having dangerous properties. 59

1.5 PROBLEM STATEMENT The current scheme of liability and compensation for HNS damage and sub-regional management in HNS shipment in the Straits of Malacca and Malaysian waters are inadequate under the laws of Malaysia. The hypothesis of this research is that it is vital for Malaysia to ratify the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances By Sea 1996 and its 2010 HNS Convention Protocol and the 2000 OPRC-HNS Protocol in order to protect the Straits of Malacca and her national marine assets from HNS damage and ensuing

4 liability and compensation claims for HNS damage from

ships, besides fulfilling her international and regional obligations and finally to implement the said convention and protocols into Malaysian domestic law. 1.6 RESEARCH METHODOLOGY The research analyses the hard law sources such as statutes, cases and international conventions. The sources of materials and data are gathered from the library, electronic publication, conferences, a visit to the International Maritime Organization in London and through data collection and interviews with the relevant government bodies and universities such as The Marine Department of Malaysia, the Maritime Institute of Malaysia, The 59 Rickaby, Simon. "Marine responses to HNS and dealing with the MSC Napoli contaminated cargo". 15 January 2010. <http://www.spillcontrol.org/IMO Documents/Braemar Howells HNS paper Nov 2008>, 15 June 2010, 11.45am. Malaysia's Department of Environment, the Faculty of Law in University of Wollongong, the Faculty of Law in University of Western Australia, the School of Oriental and African Studies in University of London, the Faculty of Law in University of Indonesia and the Faculty of Law in University of Brawijaya, Surabaya, Indonesia. It needs to be stressed that all the materials gathered are based on the interviews conducted by the researcher: through personal interview, telephone interview and email interview and this research does not include empirical research which uses sampling as mostly required in social science research. The researcher encountered many challenges and obstacles throughout the writing up of this thesis. The difficulties started with the availability of acquiring materials and data on the HNS shipment. This is because the 1996 HNS Convention and the 2010 HNS Convention Protocol are not enforced yet. Hence, there is not much data and articles on HNS shipping available. There are some complexities in enforcing the 1996 HNS Convention due to the problems faced by the shipowners, flag States and other matters. The discussion on the problems arose in enforcing the 1996 HNS Convention and the latest amendment with the 2010 Protocol HNS Convention (with the intention to quicken the entry into force of the 1996 HNS Convention). These are addressed in Chapter Three (3) of this thesis. It was challenging to gather the scattered data of the relevant domestic laws of Malaysia, Indonesia and Singapore pertaining to the HNS shipment. It was crucial for the researcher to visit the right websites and the relevant statutes. The research also presents the latest up to date amendments of the relevant domestic statutes of Malaysia, Indonesia and Singapore. For example, the provisions on the Environmental Management Act Year 1997 (Indonesia) was replaced by the Environmental Management Act Year 2009. In the regional and sub-regional HNS management of HNS substances the research was particularly difficult as the HNS spillage and the sub-regional management in HNS is not as established as in oil spillage. During this research period, there

has been no effort regionally that was made by the strait States, the user States or the IMO to take action in HNS spillage until the year 2007, when a meeting organized by the IMO and strait States identified six projects that needed contributions from the user States. One of the projects was to have six (6) locations for HNS response centres with co- operation and capacity building on hazardous and noxious substances in the Straits of Malacca and Singapore. Challenges were also faced in accessing certain data that was related to the research. For example, there are no available written reports of HNS incidents which occurred in Port Klang except that which was published through newspapers and other sources, amongst others, in the bulletin of the IMO. However, the difficulty in accessing data on HNS incidents is not only confined to Malaysia but has been stated by the International Spill Control Organisation (ISCO); "Currently, the data of experience and lessons learned in response to marine HNS incidents is insufficient and the International Spill Control Organization (ISCO) delegation took the view that within the response community there would be a significant source of additional information". 60 At IMO, London, the researcher managed to get preparatory works in drafting the 1996 HNS Convention. Some important information that was needed in this research was 60 HNS Incidents, http://www.spillcontrol.org?Joomla/index.php?option=com_content&task=view&id=73&Itemid=15 June 2010, 11.45 am. for example the amount of HNS substances imported and the name of companies importing the HNS substances which are usually confidential. It was difficult to penetrate the confidentiality of such information. However, the researcher managed to get some data for proving that Malaysia is liable as a HNS contributor based on a research conducted by a researcher at the Maritime Institute of Malaysia on HNS import by Malaysia in 2004. The statistics of vessels reporting at the Klang Vessel Traffic System were collected from the year 1999 to 2008. The statistics for the year 2009 were not available at the time of writing up this thesis. The comparative research approach is used in this thesis by examining the implementation of the 1996 HNS Convention and the 2010 HNS Protocol for a liability and compensation framework and other HNS conventions into Malaysian, Indonesian and Singaporean domestic laws. The analytical research approach is used for analyzing the effectiveness of sub- regional management and the domestic laws by the straits States; Malaysia, Indonesia and Singapore in addressing the problem of HNS pollution within the Straits of Malacca. In short, the methodology applied in this research consists of: (i) Analysis of the content, whereby the gathered data and information are extracted from the books, articles, cases statutes and conventions. (ii) Data generated from the conduct of in-depth interviews with the related authoritative individuals in order to support the findings of the research.

1.7 LITERATURE REVIEW

In a report published by the GEF/UNDP/IMO "Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas" it was proposed that 61 : "The straits States should ratify all existing international conventions concerning safety of navigation, prevention of marine pollution and compensation, particularly the 1971 Fund Convention and its 1992 Protocols, the OPRC Convention, the 1996 HNS Convention, and the 1996 Draft Protocol to the London Convention. The Straits States should also ensure that ships flying their flag comply with these international rules and standards". The report for the Prevention and Management of Marine Pollution in the East Asian Seas proposed that the strait States should ratify the 1996 HNS Convention and to ensure that ships flying their flag comply with these international rules and standards. Alan Khee-Jin Tan in his book entitled "Vessel-Source Marine Pollution" 62 laid down, at the early stage, the carriage of chemical substances by sea entailed far more difficulties and complexities than oil transportation. There are three reasons delaying in the adoption of the HNS Convention as stated by Tan: i) HNS cover an extremely wide range of chemicals and substances with varying degrees of toxicity and risks to the marine environment; 61 A Global Environment Facility Project, United Nations Development Programme, Marine Pollution Management In The Malacca/Singapore Straits : Lessons Learned (Quezon City, Philippines, 1998). 62 Tan, Alan Khee-Jin, Vessel-Source Marine Pollution, The Law and Politics of International Regulation, 1 st ed., (United Kingdom: Cambridge University Press, 2006) at 335. ii) The differing types and sizes of ships used to carry HNS also posed difficulties for the uniform imposition of compulsory insurance requirements; iii) It was extremely difficult to devise any compensation system which could effectively levy contributions from different types of cargoes which were received by different receiving parties. He also pointed out that there were disagreements in drafting the convention, inter alia the extent of the cargo shipper's obligation to affect insurance and to assume liability, the questions of whether limits of liability should "stand alone" or reflect the provisions of the LLM Convention 1996, and whether HNS carried in packed form should be covered. The HNS Convention was later adopted in 1996. The HNS Convention exempts small ships which do not exceed 200 gross tons and carry HNS in

packaged form while being engaged on entirely domestic voyages. The US participation in the HNS regime is ruled out because of the existence of its own Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Peter Wetterstein in his article; "Carriage of Hazardous Cargoes By Sea-The HNS Convention" 63 stressed the importance of establishing an international system for solving problems of compensation linked with the carriage of hazardous and noxious substances (the 1996 HNS Convention). The present rules on compensation do not provide enough safeguards for the interests of claimants in view of the huge damage that may be caused in connection with the carriage of hazardous cargo. He described that the volume of hazardous and noxious cargoes carried by sea seems to be increasing constantly and to mark the first 63 Wetterstein, Peter, "Carriage of Hazardous Cargoes By Sea-The HNS Convention",

426 Ga.J.Int'l & Comp.L.(

1997):1 st October 2007<http://www.lexis-nexis.com> disaster of HNS in 1947, when the freighter Grandcamp caught fire and exploded while being loaded with ammonium nitrate in the port of Texas City. The provisions of the 1996 HNS Convention exempted liability for oil and nuclear pollution. The rules on limitation of liability in the existing conventions of 1924, 1957 and 1976 are not applicable to the HNS Convention. "The Straits of Malacca, International Co-operation in Trade, Funding & Navigational Safety", edited by Hamzah Ahmad 64 is a compilation work of authors of the Maritime Institute of Malaysia and the experts who participated in two major meetings on the Straits of Malacca. The Straits of Malacca is recognized worldwide as the most strategically important international waterways of the world (elaboration on the importance of the Straits of Malacca is explained in Chapter Two (2). The Straits of Malacca is very significant to the Malaysian economy: therefore, Malaysia should be able to prepare for any mishaps arising from the increasing number of vessels passing the Straits daily. 65 The Straits of Malacca is facing marine pollution from land-based sources, vessel source pollution and atmospheric pollution. There are problems identified as due to ratification of conventions in order to enhance the safety and environment protection among the strait States. Among the problems are a lack of knowledge regarding the conventions due to poor participation in the preparation of those conventions, lack of research into the specific requirements of conventions in order to assess the cost-benefits available, and the often 64 Hamzah Ahmad,ed., The Straits of Malacca, International Co-Operation In Trade, Funding & Navigational Safety, (Petaling Jaya, Pelanduk Publication, 1997). 65 In short, the main characteristics of navigation which give rise to the Malacca Straits being described as a high-risk area include the following: high traffic density with frequent cross traffic, narrow channels, strong tidal streams, shifting sand waves in critical areas, the presence of numerous wrecks, low under-keel clearance, poor visibility during the frequent rain, squalls and haze, the presence of numerous fishing vessels and obstructions, fishing stakes and traps, increased port traffic and the inadequacy as well as unreliability of navigational aids. lengthy and difficult legal bureaucratic necessities which are deterrents in the consideration of any international convention to be adopted. 66 As the Straits of Malacca serve as an artery to the Malaysia economy, regional co- operation is needed in managing resources, enforcement of international safety standards on shipping, in particular port State control, harmonization of national laws and management of the environment. In "The Straits of Malacca, International Co-operation in Trade, Funding & Navigational Safety", edited by Hamzah Ahmad, some important recommendations to improve the navigational safety require: i) advance notification and declaration of hazardous cargoes destined for the Straits states should be made mandatory and; ii) ships carrying plutonium and other hazardous and noxious goods not destined for straits states should not allowed to pass through the Straits of Malacca. Article 42(1) of the 1982 LOS Convention, allows States bordering straits to adopt laws and regulations in respect of "the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait", provided that such laws and regulations are not discriminatory and do not 66 For example, Malaysia experienced difficulty in implementing MARPOL 73/78 as the cost of installing reception facilities for oil residues is expensive. "in their application have the practical effect of denying, hampering or impairing the right of transit passage" (Article 42(2)) and have been duly publicized as stated in Article 42(3). Captain

2Noor Apandi Osnin from the **Maritime Institute of Malaysia (MIMA),**

in his article on "Malaysia & the 1996 HNS Convention" 67 explained the provisions of the HNS Convention. The

2amount and type of imported **hazardous and noxious** goods that entered **Malaysia** are obtained from **the**

Statistics Department of Malaysia. Noor Apandi explained that the

2data provided by the Statistics Department includes information on the **codes for each goods, unit of quantity, and import country and import value in Ringgit Malaysia (RM).**

2All imported goods are listed and coded in accordance with the **Malaysian Trade Classification and Custom Duties Order (The Custom Code Book). The** identity of the

2company or importers that receives HNS is not

disclosed for this study and considered confidential by the Customs Department. This is based on the Royal Malaysian Customs policy for the protection of registered importers licensed by Ministry of International Trade and Industry (MITI). 68 The detailed explanation on the amount and type of HNS imported into Malaysia will be discussed in Chapter Three (3) of this thesis. Basically, he outlined two situations for Malaysia, first where ratifying the HNS Convention would secure the victims of HNS prompt, adequate and effective compensation and second, if Malaysia did not ratify the HNS Convention, i) the

2victims of pollution damage arising from incidents involving carriage of **HNS by sea will not receive compensation;**

67 Capt. Noor Apandi Osnin, "Malaysia & The HNS Convention",

2International Conference Shipping in the Era of Social Responsibility

(Argostoli, Cephalonia, Greece, March 2005). 68 Noor Apandi Osnin, "Civil Liability For Damages Caused By Hazardous And Noxious Substances The HNS Convention" (Kuala Lumpur: MIMA, 2006) at 21. ii)

2it will remain administratively and legally difficult to actually obtain **compensation for costs incurred as a result of an HNS incident in Malaysian waters; iii) the costs of responding to any incident occurring in or affecting Malaysian waters will fall solely on the Malaysian government.**

Robert Cleton in his article on "Liability And Compensation For Maritime Carriage Of Hazardous And Noxious Substances (HNS)" 69 outlined a scheme of liability and compensation relating to damage occurring during the carriage by sea of hazardous and noxious substances. During the drafting of the 1996 HNS Convention, the writer pointed out that the controversial issues have been: i) the question of who should be liable to pay compensation under the new HNS Convention, and ii) the questions on the definition of hazardous and noxious substances. To conclude, the setting up of a new compensation scheme relating to the transport by sea of HNS proves to be a very complex operation. There is a need for the industries concerned to co-operate in an acceptable international solution rather than face a variety of national regulations. 1.8 DEFINITION/TERMINOLOGY There are important terms, definitions and principles applied throughout this research which are explained here for purposes of consistency throughout the research. 69 M. Dela Rue, Colin, ed., Liability for Damage to the Marine Environment, (London: Llyod's of London Press Ltd, 1993). "Strait" refers to a comparatively narrow water-way or passage connecting two large bodies of water. 70 "A strait state" refers to a state bordering a strait used for international navigation as defined under Article 37 of the 1982 LOSC. "A coastal state" refers to a state whose sovereignty extends, beyond its land territory and internal waters and, in the case of an archipelagic state, in its waters, to an adjacent belt of sea, described as the territorial sea. Such sovereignty extends to the column of air space over the territorial sea and to its seabed and subsoil as defined in Article 2 of the 1982 LOSC. "A flag state" is a state that within the terms of Article 94 of the 1982 LOSC effectively exercises its jurisdiction and control in administrative, technical and social matters over ships flying its flag. "A port state" is a state that may undertake investigations and, where the evidence so warrants, institute proceedings in respect of any discharge from a vessel when that vessel voluntarily calls at a port or at an offshore terminal of the state according to the provisions of Article 218 of the 1982 LOSC. "Maritime casualty" is defined in Article 221(2) of the 1982 LOSC as "a collision of vessels, stranding or other incident of navigation, or other occurrence on board a vessel or 70 Bindschedler, Rudolf, Encyclopedia Of Public International Law, Elsevier Science Publishers, 1989, at 323. external to it resulting in material damage or imminent threat of material damage to a vessel or cargo." "A mile of sea refers to a nautical mile", which is a unit of approximately 2,025 yards or 1,852 metres. "Port", "Port state jurisdiction", "Port state control", "Port state control officer" are defined in Chapter Five (5) "Pollution"

3as defined in the Part 1 of the 1982 Law of the Sea

Convention; the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities. This thesis uses the definition of pollution defined by the 1982 Law of the Sea Convention. "Ship" as defined by the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996; any seagoing vessel and seaborne craft, of any type whatsoever. This thesis uses the term ship defined by the 1996 HNS Convention; however the term vessel is applied when quoting other author's citation. 1 2 3 4 5 6 7 8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31